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ABSTRACT

This paper summarizes a project undertaken by South Metropolitan Association for Low-Incidence Handicapped (SMA) in 1975 to provide handicapped children in the south suburban area of metropolitan Chicago with learning opportunities via computer assisted instruction. Students exhibiting hearing, visual mental, or other learning disabilities were enrolled in math, reading, or language arts programs prepared by Computer Curriculum Corporation. Anecdotal and objective performance data of 198 students were collected for project evaluation. Subjective descriptions offered by participating teachers illustrate students' responses to and interactions with the computer, and their own positive feedback. Graphically presented performance data indicate growth by handicapping condition and total average in each area. It is suggested that student progress is correlated with the amount of on-line exposure to the program. (SC)

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Evaluation of C.A.I. as Used by Various Handicaps

by

Raymond St. Aubin

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EVALUATION OF C.A.I. AS USED BY VARIOUS HANDICAPS

by Raymond St. Aubin, Assistant Director
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PROGRAM DESCRIPTION

South Metropolitan Association for Low-Incidence Handicapped (S.M.A.) is one of thirteen regional service agencies in the State of Illinois, for children who require special diagnostic, supportive and classroom services beyond the regular school district program.

Specifically, S.M.A. serves children with hearing impairment, vision impairment, orthopedic and health related problems, and multiple handicaps. These children would reside in one of 55 school districts that lie within the south suburban area of metropolitan Chicago. The classroom program is of the day-class variety, with children being bussed to a classroom or classroom clusters and returning in the late afternoons to their homes. These students range in age from three through twenty-one. Total enrollment for the 1975-76 school year is 335 children.

DEPLOYMENT DESCRIPTION

In December of 1974, under a Federal Grant of Title I, 89-313, South Metropolitan Association entered into a contractual agreement with Computer Curriculum Corporation of Palo Alto, California, to provide C.A.I. to children within the S.M.A. region. A total of twenty-five terminals were distributed in such a way that children exhibiting various disabilities would have an opportunity to interact with the computer. The primary emphasis was to allow handicapped students an exposure to C.A.I. Secondarily, the terminals were also available to non-handicapped students within the same building when they were not used by the handicapped population. Data on 198 students was collected from January, 1975 until the end of May, 1975, a period of five months. Of this number, 148 students exhibited disabilities under the following classifications or categories: hard-of-hearing 32; deaf 20; partially sighted 2; multiply handicapped hearing impaired 13; orthopedically handicapped 14; severe learning disability/emotionaily disturbed 23; social/emotional maladjusted 31; educable mentally handicapped (MMI) 13.

EVALUATION OF C.A.I. AND THE HANDICAPPED STUDENT

An evaluation process was carried out during the five months of operation. This evaluation is presented in two parts - one, an anecdotal, subjective description of what happened; - two, an objective evaluation based on computer records of measured growth.

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ANECDOTAL EVALUATION

Teacher response to C.A.I. can only be described as excited and positive - this despite a lengthy delay in turning up the program due to a large telephone installation job (twenty of the twenty-five terminals were remote) and a rather significant computer breakdown in mid-February, at which time some student histories were lost. Service problems at specific sites and "noise" of terminals also were definite problems individual teachers had to face. Yet teacher response to the system remained highly positive, probably best worded in the sentence "Yes, we had problems and irritations, but....."

Thirteen proctors were involved in keeping the system operating at the thirteen different sites. Twelve were teachers; one a principal. The proctoring duties were added to their responsibilities as teachers and principal. These people were asked to complete a questionnaire in May of 1975 as to their experience as a proctor, the person most heavily involved in C.A.I. and the person burdened with all the additional duties of enrolling students, changing paper and ribbons, calling for reports, monitoring of other students coming in to use the teletypewriter. Ten of the thirteen responded. Several of their responses are significant.

List the number of terminals you presently have located at your site. How many would you need to meet your needs next year?

Seven indicated they needed additional terminals. Three indicated that what they had was sufficient but that they definitely should not be given less.

The proctors were asked to check the appropriate areas on the following chart.

	Have To Have It Again Next Year	Would Be Nice To Have As Supplement	Not All That Its Cracked Up To Be	Indifferent
My feeling	6	4	0	0
My students' feeling	8	2	0	0
My administration's feeling	7	3	0	0

The proctors were asked if they would like to serve as proctors again next year.

Yes	Indifferent	No
7	2	1

Throughout the year, in telephone conversations and classroom visits, teachers consistently reported how pleased they were with the system, the growth they saw coming to their students in the academic and self-image areas, and repeated little stories to indicate what led them to these feelings.

One student with severe behavior disorders was sent to the room where the computer was located, only because he could not be controlled during gym time. The teacher hoped she could use the computer as a motivating factor, and in two

to three weeks have him using the program. He was in program three days, no longer a behavior problem while working at the terminal and, in fact, preferred to come down and work on the computer and was willing to control himself to earn that opportunity. Another student in this same school with severe learning disability/behavior problems, sat at the terminal and did 69 problems in the space of one session. "This", the teacher reported, "is more problems than the student has done in the classroom for the past four months."

One principal told of the elation of one EMH student who came to her office waving her computer paper with her first 100%.

Several students had to overcome difficult physical barriers to use the teletypewriter. One partially sighted student, in particular, would sit hunched over the terminal, the plastic guard thrown up, using a special low vision aid magnifier and light specifically designed so he could read the print-out.

One teacher related some concerns about using C.A.I. with children exhibiting social-emotional problems in school. One difficulty these children may have is relating to other persons. Relating to a machine could prove to be a cop-out for the student, and thus cut down on interrelations with other people. This, however, was not the case. This teacher felt that children using the computer showed an increase in relating and communicating to other people. Allowed to work individually in programs at their ability level, and experiencing success, the students felt better about themselves, and about school. The C.A.I. program was a high positive motivating factor for these students.

These illustrations are offered only as a few examples of student response to C.A.I. and explains in large part the teachers' positive response. The objective data cannot measure the interest in learning, the pleasure, and the delight the students exhibited when it was time for them to interact with the computer.

OBJECTIVE EVALUATION

The C.C.C. program is set up in such a way that the teacher enrolls a student in the reading, math or language arts program(s) at intervals of a half year. The computer makes adjustments during the first ten sessions to 'hone' in on the student's actual ability level. Significant jumps forward or backward may occur during these first sessions if the teacher has placed a child at an inappropriate level.

To measure student progress in the C.A.I. program, base lines were established in the different curriculum areas. Arbitrarily, it was decided that a base line score in mathematics would not be recorded until the student had spent at least ten sessions in math. Likewise, in the areas of reading and language arts, a base line score would be recorded after a student had spent

an hour or more in that program.

Scores were collected periodically from January through the end of May and recorded on sheets. For the purpose of brevity, composite scores are indicated in graphics 1,2,3 for each curriculum area.

A few notes are needed to help interpret the charts:

Sample of students involved in the reporting is small. This is inherent in the very fact that the number of students we educationally program for, by definition of low-incidence, is small. The 335 students we serve are from a total school-age population of almost 200,000.

Academic growth for certain handicaps is extremely slow. For a multiply handicapped deaf child to make two-three months of measurable progress in a ten month school year would be considered by most deaf educators as a productive and worthwhile year. Academic growth using C.A.I. must be compared to academic growth of the same handicapped group in non-C.A.I. learning activities. We would not expect an educable mentally retarded student to show normal academic growth in C.A.I. when he does not have the potential to grow that rapidly in any learning activity.

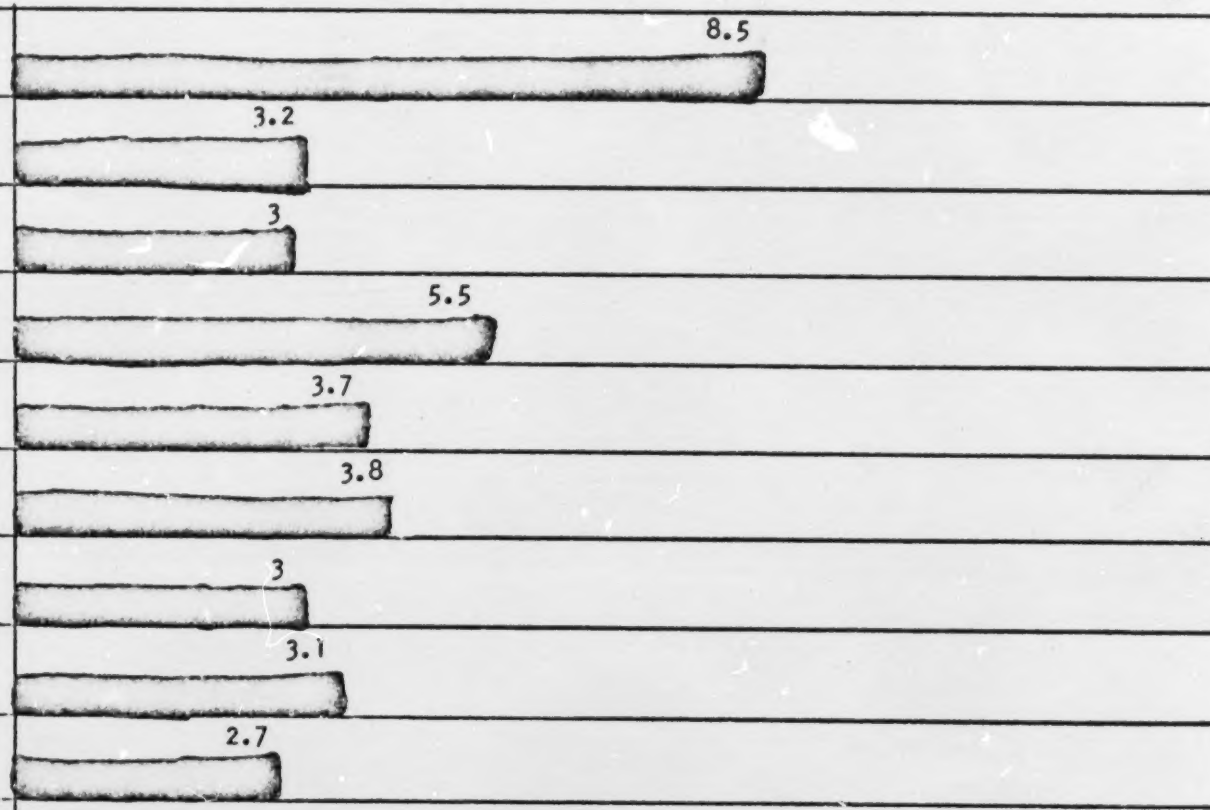
There is more data available in the area of mathematics than in either reading or language arts. Reading requires an entry level reading ability of 2.5. Language arts requires a reading level of third grade. For many of our students, these necessary entry level skills prohibited them from using the language arts and reading program.

Finally, it is evident to this writer that there is a strong correlation to length of time an individual student spent on a program and growth in that program. Because of many reasons, some correctable, some not, the majority of students did not log substantial time on the computer. This is an area where the S.M.A. program needs to work during this present year of C.A.I. usage to insure students have the capability of spending a longer time in C.A.I.

The following graphs will indicate average growth by handicapping condition and total average in each curriculum area.

COURSE: Math

Class Designation	# in Class	Gain in Months
Hard of Hearing	9	8.5
Deaf	16	3.2
Partially Sighted	2	3
Multiply Handicapped Deaf	10	5.5
Orthopedic	13	3.7
Severe LD/Behavior Disordered	24	3.8
Educationally Handicapped	19	3
EMH (EMR)	11	3.1
Regular	18	2.7



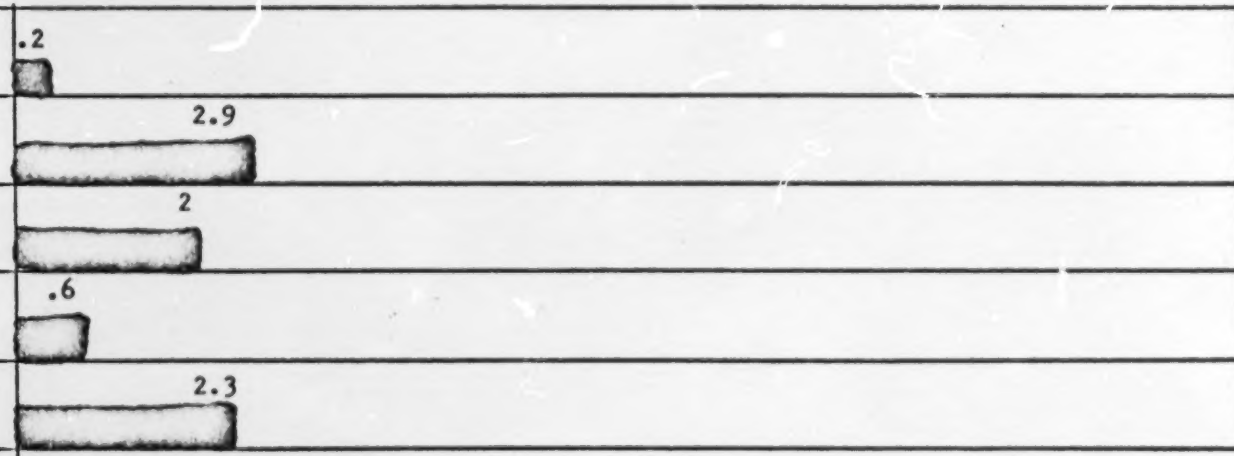
Time on Computer (Class Average) Hrs. Mins.

# of Months in Course
4

Average Gain
4.05

COURSE: Reading

Class Designation	# in Class	Gain in Months
Hard of Hearing	18	.2
Deaf	20	2.9
Multiply Handicapped Deaf	10	2
Severe LD/Behavior Disordered	13	.6
Educationally Handicapped	19	2.3



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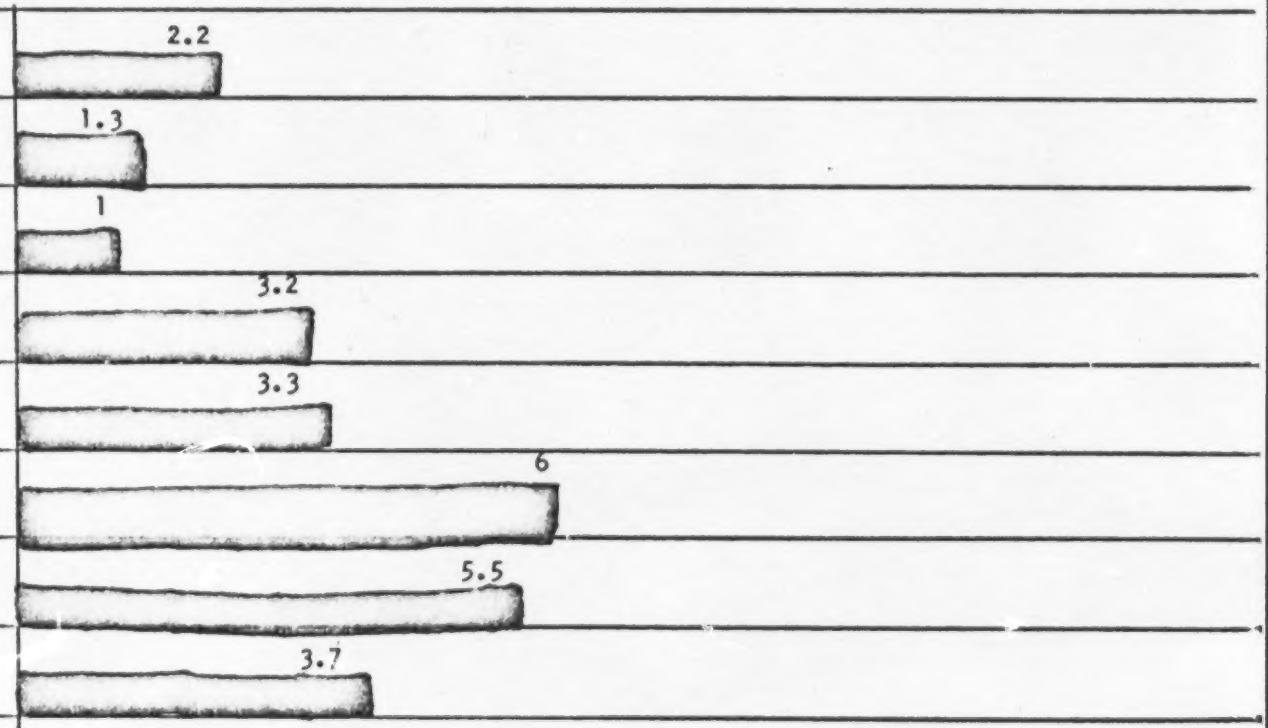
Time on Computer (Class Average) Hrs. Mins.

# of Months in Course 4

Average Gain 1.6

COURSE: Language

lass Designation	# in Class	Gain in Months
Hard of Hearing	11	2.2
Deaf	6	1.3
Partially Sighted	2	1
Multiply Handicapped Deaf	8	3.2
Orthopedic	3	3.3
Severe LD/Behavior Disordered	1	6
EMH (EMR)	2	5.5
Regular	11	3.7



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Time on Computer (Class Average) Hrs. Mins.

# of Months in Course
4

Average Gain
3.2